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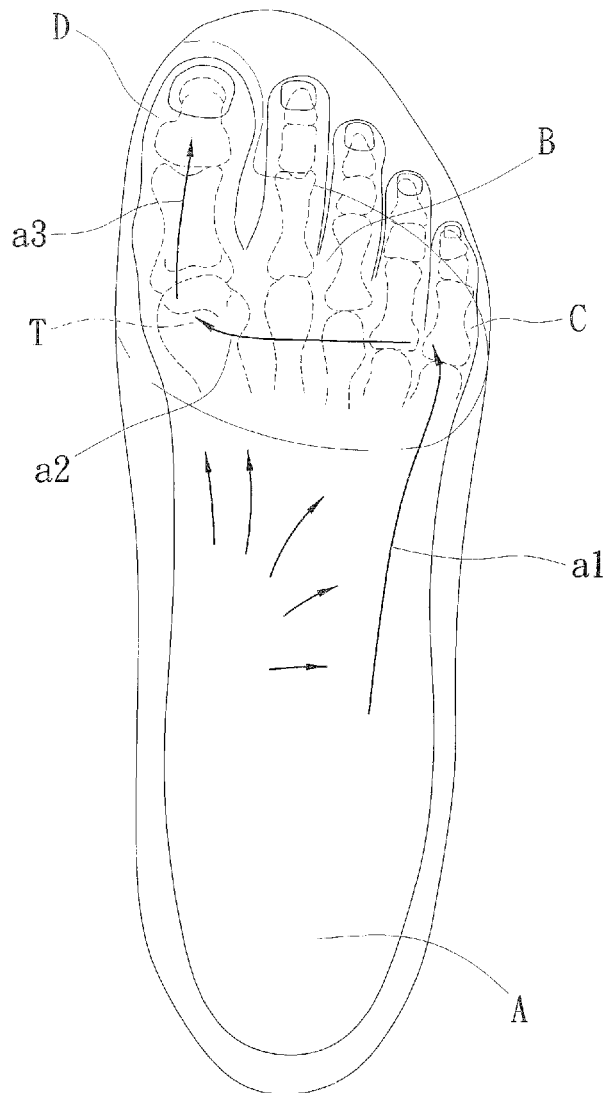
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(57) **ABSTRACT**

An insole comprises an insole body of a suitable thickness and softness, which comprises a metatarsal area, an arch area, and a heel area, wherein the metatarsal area has a treading portion, which is concaved and corresponded to a ball of the foot for receiving the ball of foot, and an outer supporting portion, which is extended from the treading portion toward the transverse arch to form an inclined plane and having a thickness which is more than the thickness of the treading portion. Accordingly, the soles of user's feet are adjusted inward by the insole of the present invention which is designed for adjusting the foot posture, lowering the pressure on the normal or valgus feet to keep the guide path of the stress on feet in a relaxed posture. Furthermore, the insole of the present invention is freely put in or out from the shoes, being convenient use.



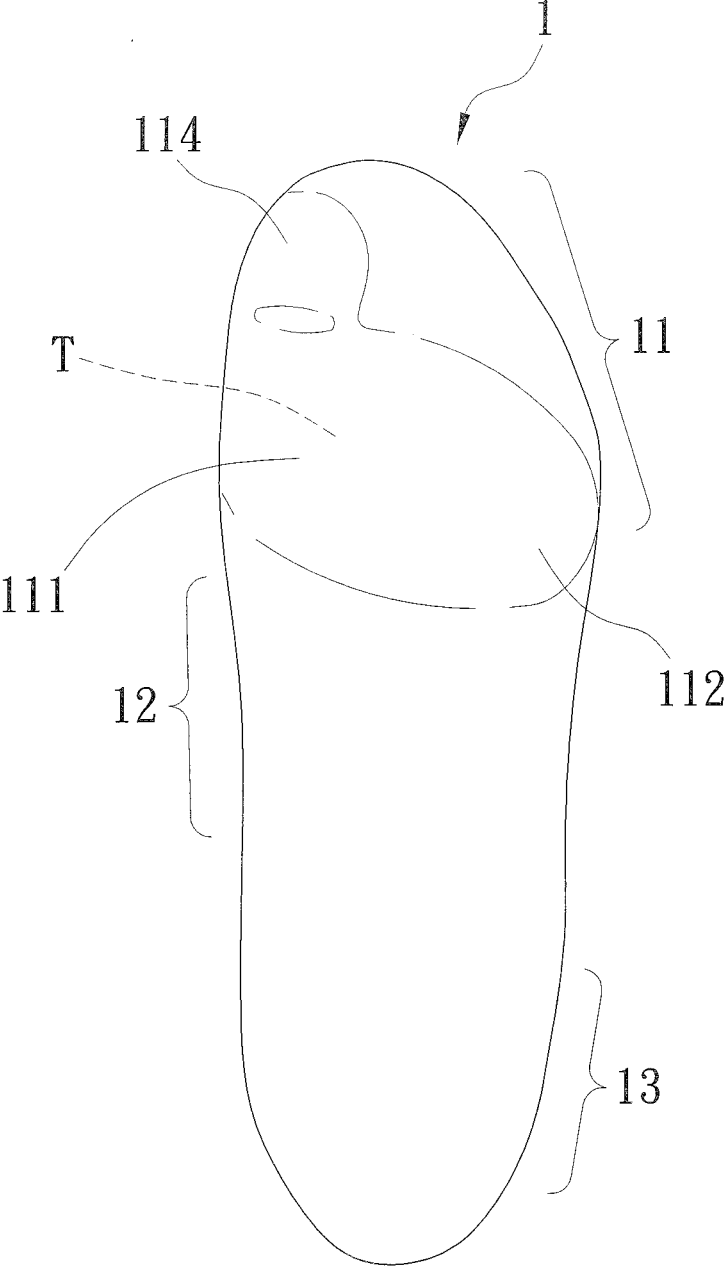


FIG. 1

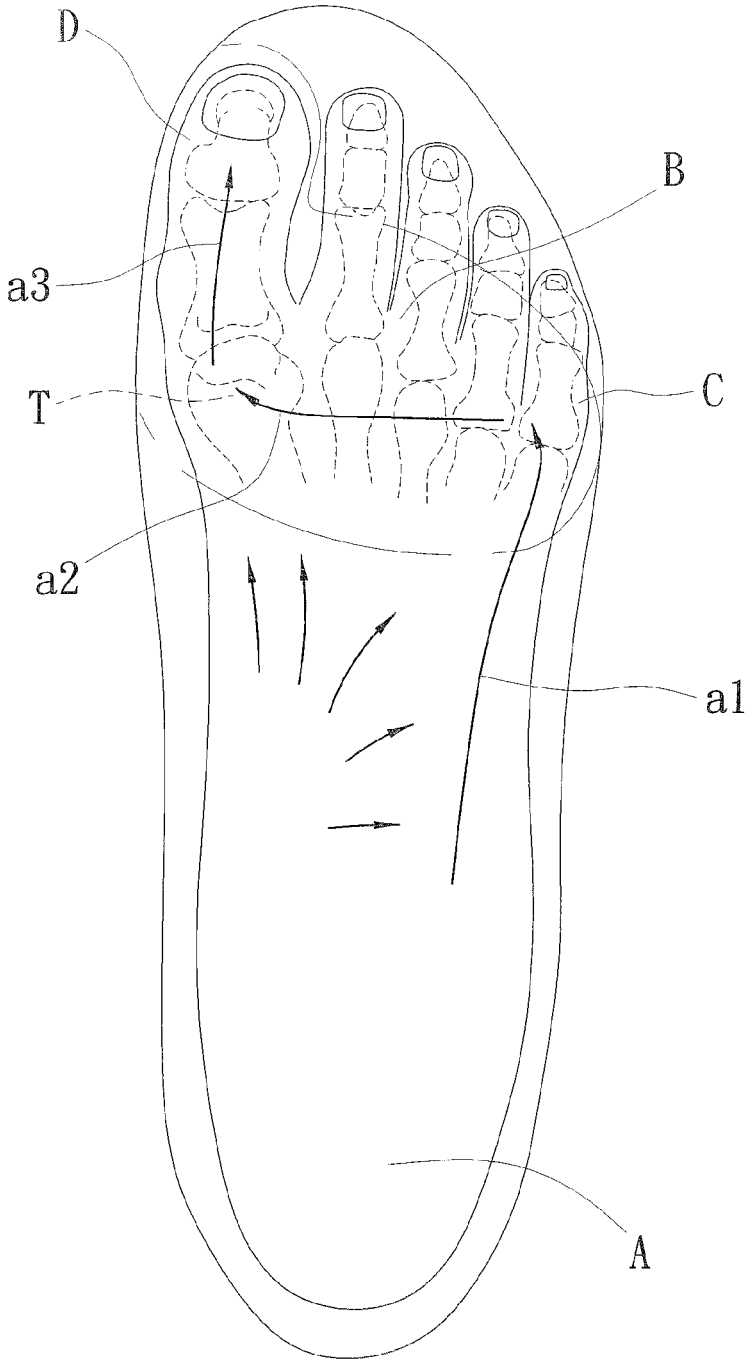


FIG. 2

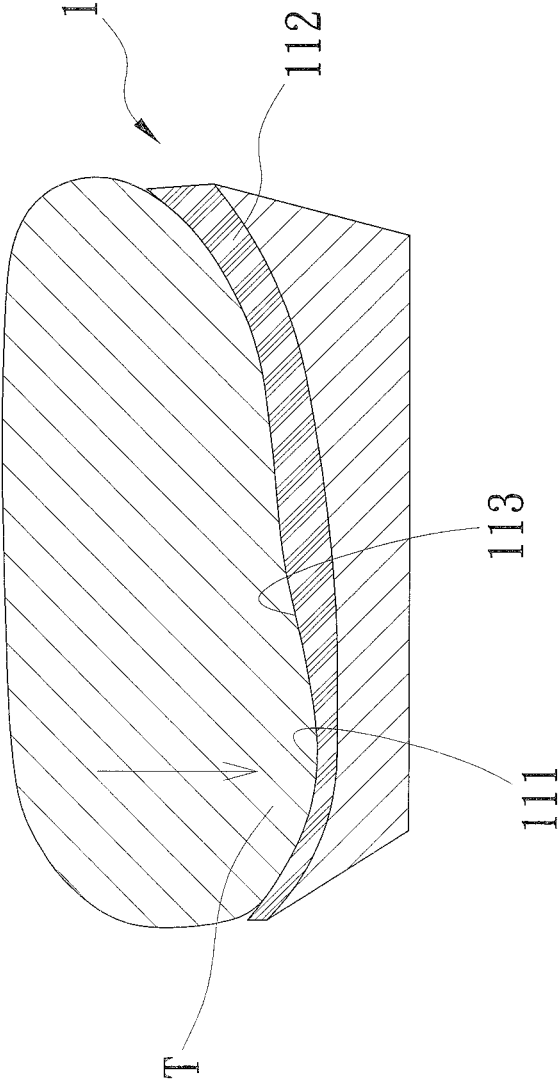


FIG. 3

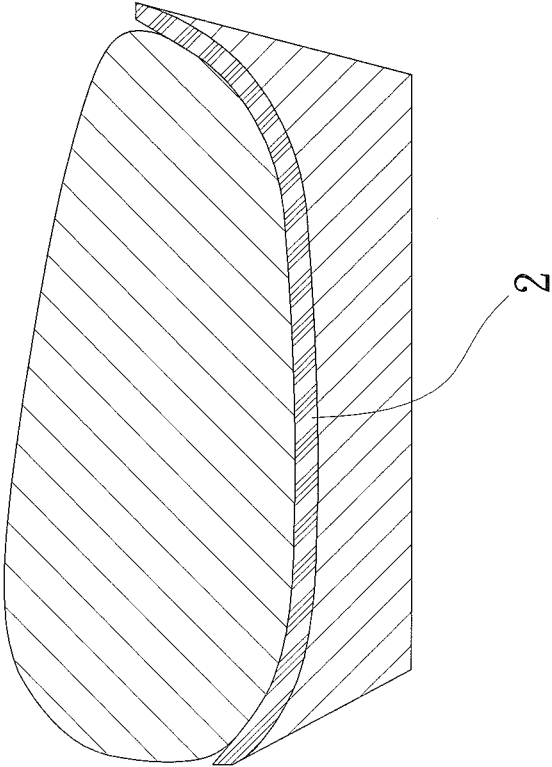


FIG. 4(PRIOR ART)

## INSOLE

### BACKGROUND OF THE INVENTION

#### Field of the Invention

**[0001]** The present invention relates to an insole. More particularly, an insole is freely put in or taken out from the shoes, and the foot posture can be adjusted by the insole.

#### Description of Related Art

**[0002]** The skeleton of the foot is made up of 26 bones. When human are standing, the first metatarsal bone, the fifth metatarsal bone, and the heel bone are as the support points. The first metatarsal bone and the fifth metatarsal bone are not parallel to each other, but the first metatarsal bone is lower than the fifth metatarsal bone, then, the three points which are at different height to form the arch to support the human body. The arch of the feet should be maintained in a certain shape, so the feet are flexible and relaxed during walk. The shoes are basic footwear to protect the feet during walk or running. The weight supported by the human feet is one to two fold of the bodyweight, so there should need a good insole in the shoes for protecting the feet, preventing the human bones, joints, and muscle from being injury.

**[0003]** The shoes on the market, all have insoles inside. The insole is divided into two kinds, one kind can be taken out freely, and the other is fixed in the shoes and cannot be taken out. The main function of the insole is to provide the softness to increase comfortable feeling. However, the insoles 2 on the market, which insoles can be added in the shoes or taken out, are mostly flat pads, shown as FIG. 4, a bottom layer of the insole is mostly made of foam material and is one piece with the thickness of 3 mm to 7 mm., and a surface layer of the insole is combined with the upper surface of the bottom layer, which surface layer is made of breathable mesh fiber, general cloth, artificial leather, or leather. The foregoing insole 2 is mainly as the soft lining in the shoe or is as the liner when the foot is not match with the shoe. Therefore, the insole 2 only provides buffer and disperses pressure at the three support points of the foot described as foregoing, it cannot provide any support to the transverse arch of the forefoot. During human are standing or walking, the pressure and the weight added on the transverse arch of the forefoot are not buffered and borne by the flat insole, it is still borne by the flexibility of the transverse arch of the forefoot. In other words, the traditional insole 2 cannot provide the support for the transverse arch of the forefoot and cannot relieve the pressure on the forefoot produced during standing or walking. Because the price and manufacture cost of the insole 2 are low, it does not emphasize and provide the ergonomics design or other benefit of walk or sport.

**[0004]** Besides, a kind of insole structure is thickened to absorb shock at the position which is corresponded to the high pressure of the forefoot. This can indeed ease the stress on the high pressure position, but the stress is transferred to the arch or other non-treading part. This situation cannot be responded immediately by the insole, after a long time, resulting in foot and fascia pain.

#### SUMMARY OF THE INVENTION

**[0005]** Accordingly, the object of the present invention is related to an insole. More particularly, an insole is freely put in or taken out from the shoes, and the foot posture can be adjusted by the insole.

**[0006]** For the above object, an insole comprises an insole body of a suitable thickness and softness, and the insole body comprises a is metatarsal area, an arch area, and a heel area, wherein the metatarsal area has a treading portion and an outer supporting portion. The treading portion is concaved and corresponded to a ball of the user's foot for receiving the ball of foot and having a thickness. The outer supporting portion is extended from the treading portion toward the transverse arch to form an inclined plane and having a thickness which is more than the thickness of the treading portion. Accordingly, the soles of user's feet are adjusted inward by the insole of the present invention which is designed for adjusting the foot posture, lowering the pressure on the normal or valgus feet to keep the guide path of the stress on feet in a relaxed posture. Furthermore, the insole of the present invention is freely put in or taken out from the shoes, achieving the effect of convenient use.

**[0007]** According to an embodiment of the present invention, the metatarsal area of the insole body includes a big toe receiving portion which is connected to the treading portion and corresponding to the user's big toe and the big toe receiving portion is concaved downward according to the shape of the user's big toe.

**[0008]** According to the above description and embodiments, the insole of the present invention has the advantages as following:

**[0009]** 1. By the concaved treading portion of the insole of the present invention, the forefoot is slightly inclined inwardly to adjust the foot posture, so the stress produced during walk is smoothly transferred, achieving the effect of effort saving and having comfort.

**[0010]** 2. By the concaved treading portion of the insole of the present invention, during walk, the kinetic energy of inertia is continued and the resistance is reduced to reduce the fatigue feeling, achieving the effect of reducing the fatigue.

**[0011]** 3. By the concaved treading portion of the insole of the present invention, the forefoot is slightly inclined inwardly to adjust the foot posture, so the situation of the lumbar oppression is reduced, achieving the effect that the lumbar is less pained when the user stands long time.

**[0012]** 4. The insole of the present invention not only has the feature for adjusting the foot posture when it is put in the shoes, but also has the advantages of thin, lightweight, and space saving.

#### BRIEF DESCRIPTION OF THE DRAWINGS

**[0013]** FIG. 1 is a top view of an insole according to an embodiment of the present invention;

**[0014]** FIG. 2 is a schematic diagram of an insole when the user's foot is put on it according to an embodiment of the present invention;

**[0015]** FIG. 3 is a lateral sectional view of a metatarsal area of an insole according to an embodiment of the present invention; and

**[0016]** FIG. 4 is an insole according to the prior art.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

**[0017]** Please refer to FIG. 1 to FIG. 3, which are a top view, a schematic diagram, and a lateral sectional view of an insole according to an embodiment of the present invention.

**[0018]** An insole body **1** of a suitable thickness and softness and comprises a metatarsal area **11**, an arch area **12**, and a heel area **13**, wherein the metatarsal area **11** has a treading portion **111** and an outer supporting portion **112**. The treading portion **111** is concaved and corresponded to a ball T of the user's foot for receiving the ball T of foot and having a thickness. The outer supporting portion **112** is extended outward from the treading portion **111** and having a thickness which is more than the thickness of the treading portion **111** and less than the thickness of the insole body **1**.

**[0019]** Furthermore, the outer supporting portion **112** is smoothly connected to the treading portion **111** to form an inclined plane **113**. Moreover, the metatarsal area **11** of the insole body **1** includes a big toe receiving portion **114**, which is connected to the treading portion **111** and corresponding to the user's big toe, and the big toe receiving portion **114** is concaved downward according to the shape of the user's big toe.

**[0020]** Please refer to FIG. 1 to FIG. 3. Before the effect of the insole of the present invention is explained, the guide path (shown as arrow) of the stress on feet during walk is explained first. It is shown as FIG. 2, when is the user walks, a heel (A) is touched the ground first; then, a sole (B) is contacted with the ground. When the foot is lifted along with the foot moving forward, the heel is lifted up gradually to transfer the lateral of the foot forward, making the stress move along the arrow a1 to the treading point (called as transverse arch, which crosses the first metatarsal to fifth metatarsal) at a little toe (C) of the sloe (B). While the treading point bears the body weight, the treading point transfer the stress, which stress goes into the big toe (D) along the arrow a2, at this time, the stress is started to be guided to the lower point, moving to the lowest treading point (the first metatarsal) which is near more front and lower bone. Along with walking forward continuously and lifting up the heel, the stress is transferred from the big toe (D) along the arrow a3 to push out, and then the foot is off the ground to accomplish a complete walk.

**[0021]** According to the foregoing guide path, the comfortable walking method is satisfied by a path, which path is guided by a gap between the outside to the inside due to the high outside and the low inside. Therefore, when the insole of the present invention is manufactured, the shape of the insole body **1** is complied with the foot shape. By the insole body **1** of a suitable thickness and softness, the metatarsal area **11** of the insole body **1** has a treading portion **111**, which treading portion **111** is concaved and corresponded to the ball T of the user's foot for receiving the ball T of foot, making the treading portion **111** support the ball T of is foot protruded from the forefoot. When the user walks, under the gravity and smoothly transferring the stress, the forefoot is slightly inclined inward, simultaneously, the stress is transferred from the treading portion **111** outward to the outer supporting portion **112** to hold up the forefoot to match with the slightly inclined inward state of the forefoot, forming an inclined plane **113**. The stress is transferred smoothly by the inclined plane **113**, so the soles of user's feet are adjusted inward effectively, lowering the pressure on the normal or valgus feet to keep the guide path of the stress on feet relaxed and smooth, to continue the inertia kinetic energy and to lower the resistance.

**[0022]** Besides, the insole of the present invention is freely put in or taken out from the shoes, achieving the effect of convenient use. When the user puts on the shoes, the insole body **1** is freely put into the shoes. The shape and the effect of each kind of the shoes are different, but it does not affect the insole structure of the present invention.

**[0023]** Furthermore, when the user uses the insole of the present invention, the forefoot is inclined inward, so the insole body **1** further comprises a big toe receiving portion **114**, which big toe receiving portion **114** is concaved downward according to the shape of the user's big toe to support the user's big toe.

**[0024]** According to the above description and embodiments, the insole of the present invention has the advantages as following:

**[0025]** 1. By the concaved treading portion of the insole of the present invention, the forefoot is slightly inclined inwardly to adjust the foot posture, so the stress produced during walk is smoothly transferred, achieving the effect of effort saving and having comfort.

**[0026]** 2. By the concaved treading portion of the insole of the present invention, during walk, the kinetic energy of inertia is continued and the resistance is reduced to reduce the fatigue feeling, achieving the effect of reducing the fatigue.

**[0027]** 3. By the concaved treading portion of the insole of the present invention, the forefoot is slightly inclined inwardly to adjust the foot posture, so the situation of the lumbar oppression is reduced, achieving the effect that the lumbar is less pained when the user stands long time.

**[0028]** 4. The insole of the present invention not only has the feature for adjusting the foot posture when it is put in the shoes, but also has the advantages of thin, lightweight, and space saving.

What is claimed is:

1. An insole, comprising:

an insole body of a suitable thickness and softness, the insole body comprising a metatarsal area, an arch area, and a heel area, wherein the metatarsal area comprises: a treading portion, concaved and corresponded to a ball of the user's foot for receiving the ball of foot and having a thickness; and an outer supporting portion, extended outward from the treading portion and having a thickness which is more than the thickness io of the treading portion and less than the thickness of the insole body.

2. The insole according to claim 1, wherein the outer supporting portion is smoothly connected to the treading portion to form an inclined plane.

3. The insole according to claim 1, wherein the metatarsal area of is the insole body includes a big toe receiving portion, which is connected to the treading portion and corresponding to the user's big toe, and the big toe receiving portion is concaved downward according to the shape of the user's big toe.

4. The insole according to claim 2, wherein the metatarsal area of the insole body includes a big toe receiving portion, which is connected to the treading portion and corresponding to the user's big toe, and the big toe receiving portion is concaved downward according to the shape of the user's big toe.

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